

AMENDMENTS TO THE CLAIMS

Claims 1 to 19 (canceled)

Claim 20 (currently amended): A burn through and flame propagation resistant insulation system comprising:

a burn through and flame propagation resistant laminated sheet; the laminated sheet including a sheet of burn through and flame propagation resistant paper comprising: aramid fibers, mica flakes, and aramid fibril binder; and a first sheet of ~~polymer~~ a water vapor transmission and flame propagation resistant polyvinylfluoride or polyimide film from 0.2 to 1.0 mils thick and weighing between 20 and 50 g/m²; the polyvinylfluoride or polyimide film having a water vapor permeability of 4.0 perms or less and a first major surface bonded to a first major surface of the sheet of burn through and flame propagation resistant paper;

a layer of lightweight, flexible, thermal and acoustical insulation material; the layer of insulation material having first and second major surfaces; and

the laminated sheet overlaying a major surface of the layer of insulation material with the sheet of burn through and flame propagation resistant paper being between the polyvinylfluoride or polyimide film of the laminated sheet and the layer of insulation material to restrict the transmission of water vapor into the burn through and flame propagation resistant paper of the laminated sheet to better preserve the integrity of the burn through and flame propagation resistant paper of the laminated sheet

Claim 21 (original): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a glass

fiber insulation material.

Claim 22 (original): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a polyimide foam insulation material.

Claim 23 (original): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet has from about 30% to about 50% by weight mica.

Claim 24 (currently amended): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet is treated with a fluorocarbon coating having a dry weight between 20 and 100 g/m² to make the sheet of burn through and flame propagation resistant paper more water repellant.

Claim 25 (currently amended): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission resistant film having a water vapor permeability of ~~4.0~~ 2.5 perms or less.

Claims 26 to 34 (canceled)

Claim 35 (currently amended): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the laminated sheet includes a second sheet of polymeric film having a first major surface bonded to a second major surface of the sheet of burn through and flame propagation resistant paper; and

~~at least one of the first and second sheets of polymeric film are flame propagation and water vapor transmission resistant and having a water vapor permeability of 4.0 perms or less.~~

Claim 36 (original): The burn through and flame propagation resistant insulation system according to claim 35, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet has from about 30% to about 50% by weight mica.

Claim 37 (currently amended): The burn through and flame propagation resistant insulation system according to claim 35, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet is treated with a fluorocarbon coating having a dry weight between 20 and 100 g/m² to make the sheet of burn through and flame propagation resistant paper more water repellant.

Claim 38, 39 and 40 (canceled)

Claim 41 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an

outboard side formed by an outer metal skin and framework and an inboard side formed by cabin trim panels; and

the laminated sheet is located intermediate the insulation layer of the insulation system and the outboard side of the cavity.

Claim 42 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 41, wherein:

the insulation layer comprises a plurality of encapsulated insulation assemblies.

Claim 43 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 20, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an outboard side formed by an outer metal skin and framework and an inboard side formed by cabin trim panels; and

the laminated sheet is located intermediate the insulation layer of the insulation system and the inboard side of the cavity.

Claim 44 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 43, wherein:

the insulation layer comprises a plurality of encapsulated insulation assemblies.

Claim 45 (withdrawn): A burn through and flame propagation resistant insulation system comprising:

an envelope formed of a burn through and flame propagation resistant laminated sheet; the laminated sheet including a sheet of burn through and flame propagation resistant paper comprising: aramid fibers, mica flakes, and aramid fibrid binder, and a first

sheet of polymeric film having a first major surface bonded to a first major surface of the sheet of burn through and flame propagation resistant paper;

a layer of lightweight, flexible, thermal and acoustical insulation material contained within the envelope.

Claim 46 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a glass fiber insulation material.

Claim 47 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a polyimide foam insulation material.

Claim 48 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet has from about 30% to about 50% by weight mica.

Claim 49 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet is treated with a fluorocarbon to make the sheet of burn through and flame propagation resistant paper more water repellant.

Claim 50 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission resistant film having a water vapor permeability of 4.0 perms or less.

Claim 51 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission and flame propagation resistant polymeric film having a water vapor permeability of 4.0 perms or less; and the first sheet of polymeric film forms an outer surface of the envelope to restrict the transmission of water vapor into the burn through and flame propagation resistant paper and the insulation layer.

Claim 52 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission and flame propagation resistant polymeric film, having a water vapor permeability of 4.0 perms or less, selected from a group consisting of polyvinylfluoride and polyimide films; and the first sheet of polymeric film forms an outer surface of the envelope to restrict the transmission of water vapor into the burn through and flame propagation resistant paper and the insulation layer.

Claim 53 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

a second major surface of the first sheet of polymeric film of the laminated sheet is coated with a heat sealable adhesive.

Claim 54 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

a second major surface of the sheet of burn through and flame propagation resistant paper of the laminated sheet is coated with a heat sealable adhesive.

Claim 55 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the laminated sheet includes a reinforcing scrim to increase the puncture and tear resistance of the laminated sheet.

Claim 56 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission and flame propagation resistant polymeric film having a water vapor permeability of 4.0 perms or less; and

a second major surface of the first sheet of polymeric film of the laminated sheet is coated with a heat sealable adhesive.

Claim 57 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 56, including:

a sheet of scrim bonded by the coating of heat sealable adhesive to the polymeric film of the laminated sheet to increase the puncture and tear resistance of the laminated sheet.

Claim 58 (withdrawn): The burn through and flame propagation resistant insulation

system according to claim 45, wherein:

the first sheet of polymeric film of the laminated sheet is a water vapor transmission and flame propagation resistant polymeric film having a water vapor permeability of 4.0 perms or less; and

a second major surface of the sheet of burn through and flame propagation resistant paper of the laminated sheet is coated with a heat sealable adhesive.

Claim 59 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 58, including:

a sheet of scrim bonded by the coating of heat sealable adhesive to the burn through and flame propagation resistant paper of the laminated sheet to increase the puncture and tear resistance of the laminated sheet.

Claim 60 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the laminated sheet includes a second sheet of polymeric film having a first major surface bonded to a second major surface of the sheet of burn through and flame propagation resistant paper; and

at least one of the first and second sheets of polymeric film are flame propagation and water vapor transmission resistant and having a water vapor permeability of 4.0 perms or less.

Claim 61 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 60, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet has from about 30% to about 50% by weight mica.

Claim 62 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 60, wherein:

the sheet of burn through and flame propagation resistant paper of the laminated sheet is treated with a fluorocarbon to make the sheet of burn through and flame propagation resistant paper more water repellant.

Claim 63 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 60, wherein:

a second major surface of the first sheet polymeric film is coated with a heat sealable adhesive.

Claim 64 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 60, wherein:

second major surfaces of the first and second sheets of polymeric film of the laminated sheet are coated with a heat sealable adhesive.

Claim 65 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 60, wherein:

the laminated sheet includes a reinforcing scrim to increase the puncture and tear resistance of the laminated sheet.

Claim 66 (withdrawn): The burn through and flame propagation resistant insulation system according to claim 45, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an outboard side formed by an outer metal skin and framework and an inboard side formed by

cabin trim panels.

Claims 67 to 72 (canceled)

Claim 73 (currently amended): A burn through, flame propagation and water vapor transmission resistant insulation system comprising:

a burn through, flame propagation and water vapor transmission resistant sheet ~~comprising~~ consisting of: a sheet of burn through and flame propagation resistant paper having first and second major surfaces and comprising: aramid fibers, mica flakes, and aramid fibril binder; the sheet of burn through and flame propagation resistant paper having the first major surface treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating and having a water vapor permeability of 4.0 perms or less;

a layer of lightweight, flexible, thermal and acoustical insulation material; the layer of insulation material having first and second major surfaces; and

the burn through, flame propagation and water vapor transmission resistant sheet overlaying a major surface of the layer of insulation material with the treated first major surface of the burn through, flame propagation and water vapor transmission resistant sheet being an outer surface of the burn through, flame propagation and water vapor transmission resistant sheet to restrict the transmission of water vapor into the burn through, flame propagation and water vapor transmission resistant sheet to preserve the integrity of the burn through and flame propagation resistant paper of the burn through, flame propagation and water vapor transmission resistant sheet.

Claim 74 (original): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the sheet of burn through and flame propagation resistant paper has from about 30% to about 50% by weight mica.

Claim 75 (original): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the heat sealable polyvinylfluoride coating, by dry weight, is between 20 and 100 g/m².

Claim 76 (currently amended): ~~The~~ A burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, including comprising:

a burn through, flame propagation and water vapor transmission resistant sheet consisting of: a sheet of burn through and flame propagation resistant paper having first and second major surfaces and comprising: aramid fibers, mica flakes, and aramid fibril binder; the sheet of burn through and flame propagation resistant paper having the first major surface treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating and having a water vapor permeability of 4.0 perms or less; and a sheet of reinforcing scrim bonded to one of the major surfaces of the sheet of burn through and flame propagation resistant paper to increase the puncture and tear resistance of the burn through, flame propagation and water vapor transmission resistant sheet;

a layer of lightweight, flexible, thermal and acoustical insulation material; the layer of insulation material having first and second major surfaces; and

the burn through, flame propagation and water vapor transmission resistant sheet overlaying a major surface of the layer of insulation material with the treated first major surface of the burn through, flame propagation and water vapor transmission resistant sheet being an outer surface of the burn through, flame propagation and water vapor

transmission resistant sheet to restrict the transmission of water vapor into the burn through, flame propagation and water vapor transmission resistant sheet to preserve the integrity of the burn through and flame propagation resistant paper of the burn through, flame propagation and water vapor transmission resistant sheet.

Claim 77 (currently amended): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, including 76 wherein:

a the sheet of reinforcing scrim is bonded by the heat sealable polyvinylfluoride coating to the first major surface of the sheet of burn through and flame propagation resistant paper and the polyvinylfluoride coating has a dry weight between 20 and 100 g/m² ~~to increase the puncture and tear resistance of the burn through, flame propagation and water vapor transmission resistant sheet.~~

Claim 78 (original): The burn through, flame propagation and water vapor transmission resistant sheet according to claim 73, wherein:

the sheet of burn through and flame propagation resistant paper has a second major surface treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating.

Claim 79 (original): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a glass fiber insulation material.

Claim 80 (original): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a polyimide foam insulation material.

Claim 81 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an outboard side formed by an outer metal skin and framework and an inboard side formed by cabin trim panels; and

the burn through, flame propagation and water vapor transmission resistant sheet is located intermediate the insulation layer of the insulation system and the outboard side of the cavity.

Claim 82 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 81, wherein:

the insulation layer comprises a plurality of encapsulated insulation assemblies.

Claim 83 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 73, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an outboard side formed by an outer metal skin and framework and an inboard side formed by cabin trim panels; and

the burn through, flame propagation and water vapor transmission resistant sheet is located intermediate the insulation layer of the insulation system and the inboard side of the cavity.

Claim 84 (withdrawn): The burn through, flame propagation and water vapor

transmission resistant insulation system according to claim 83, wherein:

the insulation layer comprises a plurality of encapsulated insulation assemblies.

Claim 85 (withdrawn): A burn through and flame propagation resistant insulation system comprising:

an envelope formed of a burn through, flame propagation and water vapor transmission resistant sheet; the burn through, flame propagation and water vapor transmission resistant sheet comprising a sheet of burn through and flame propagation resistant paper having first and second major surfaces and comprising: aramid fibers, mica flakes, and aramid fibrid binder; the sheet of burn through and flame propagation resistant paper having the first major surface treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating and having a water vapor permeability of 4.0 perms or less;

a layer of lightweight, flexible, thermal and acoustical insulation material contained within the envelope.

Claim 86 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, wherein:

the sheet of burn through and flame propagation resistant paper has from about 30% to about 50% by weight mica.

Claim 87 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, wherein:

the heat sealable polyvinylfluoride coating, by dry weight, is between 20 and 100 g/m².

Claim 88 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, including:

a sheet of reinforcing scrim bonded to one of the major surfaces of the sheet of burn through and flame propagation resistant paper to increase the puncture and tear resistance of the burn through, flame propagation and water vapor transmission resistant sheet.

Claim 89 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, including:

a sheet of reinforcing scrim bonded by the heat sealable polyvinylfluoride coating to the first major surface of the sheet of burn through and flame propagation resistant paper to increase the puncture and tear resistance of the burn through, flame propagation and water vapor transmission resistant sheet.

Claim 90 (withdrawn): The burn through, flame propagation and water vapor transmission resistant sheet according to claim 85, wherein:

the sheet of burn through and flame propagation resistant paper has a second major surface treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating.

Claim 91 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a glass fiber insulation material.

Claim 92 (withdrawn): The burn through, flame propagation and water vapor

transmission resistant insulation system according to claim 85, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a polyimide foam insulation material.

Claim 93 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, wherein:

the system is located within a cavity of an aircraft fuselage; the cavity having an outboard side formed by an outer metal skin and framework and an inboard side formed by cabin trim panels.

Claim 94 (withdrawn): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 85, wherein:

the heat sealable polyvinylfluoride coating forms an outer surface of the envelope to restrict the transmission of water vapor into the burn through and flame propagation resistant paper and the insulation layer.

Claim 95 (new): The burn through, flame propagation and water vapor transmission resistant sheet according to claim 76, wherein:

the second major surface of the sheet of burn through and flame propagation resistant paper is treated with a heat sealable, moisture and flame propagation resistant polyvinylfluoride water based emulsion coating.

Claim 96 (new): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 76, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a glass fiber insulation material.

Claim 97 (new): The burn through, flame propagation and water vapor transmission resistant insulation system according to claim 76, wherein:

the layer of lightweight, flexible, thermal and acoustical insulation material is a polyimide foam insulation material.